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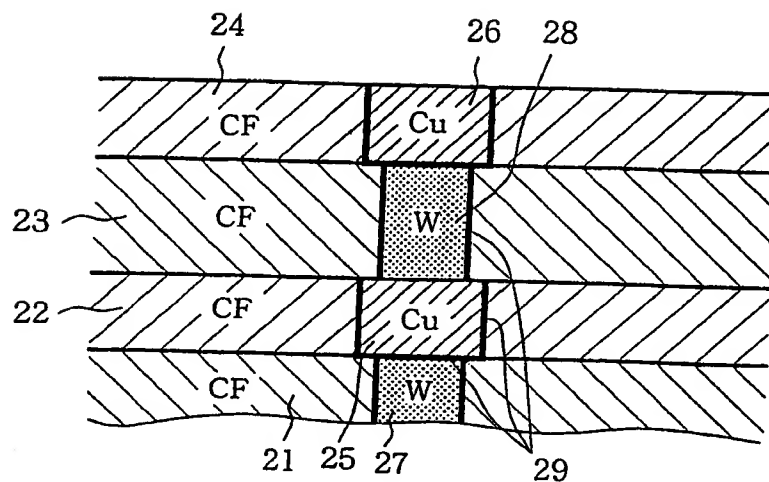


FIG. 1a

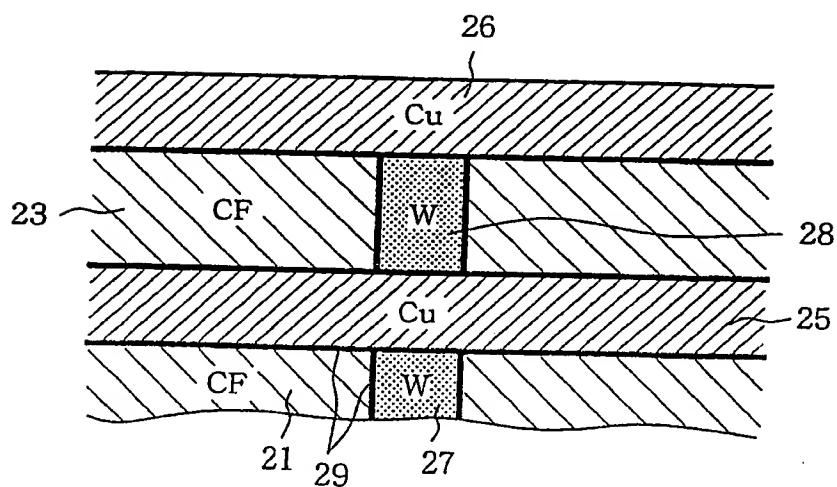


FIG. 1b

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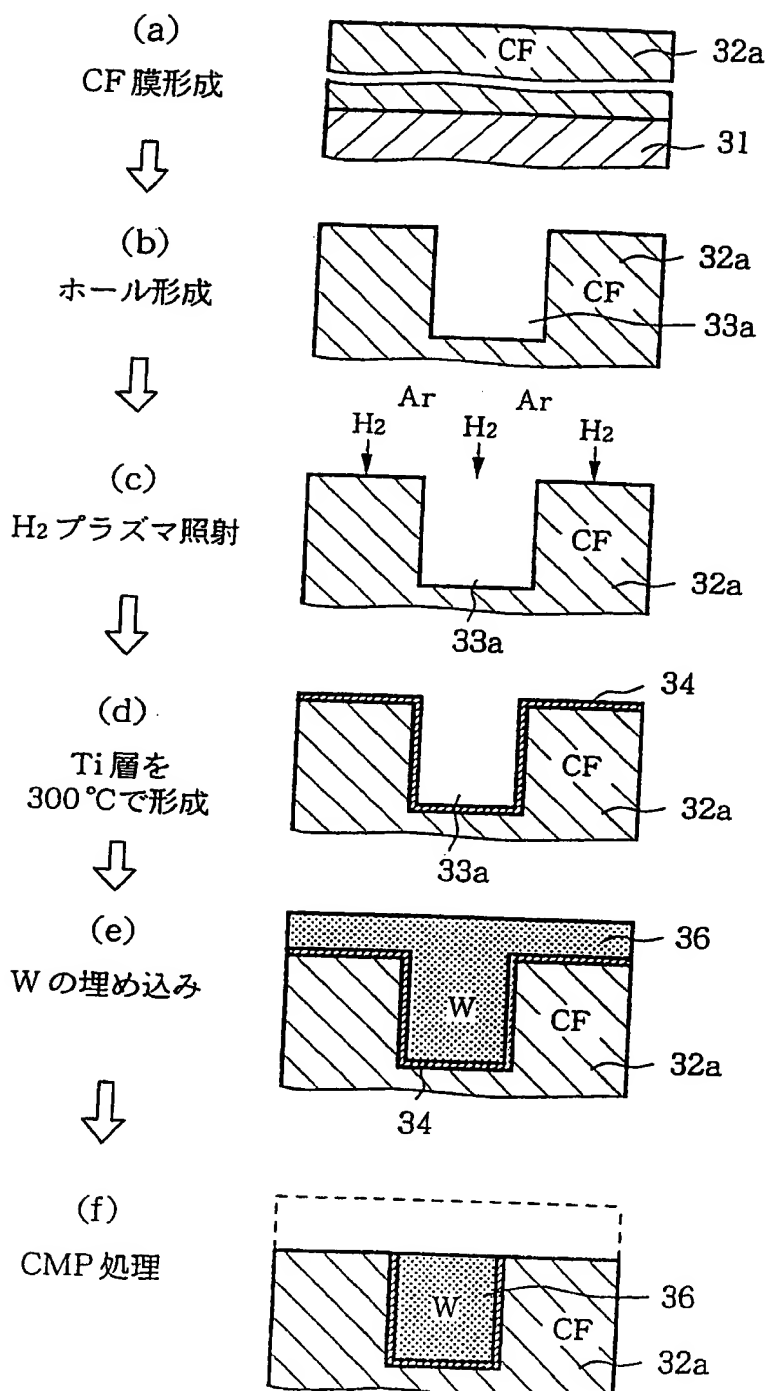


FIG. 2

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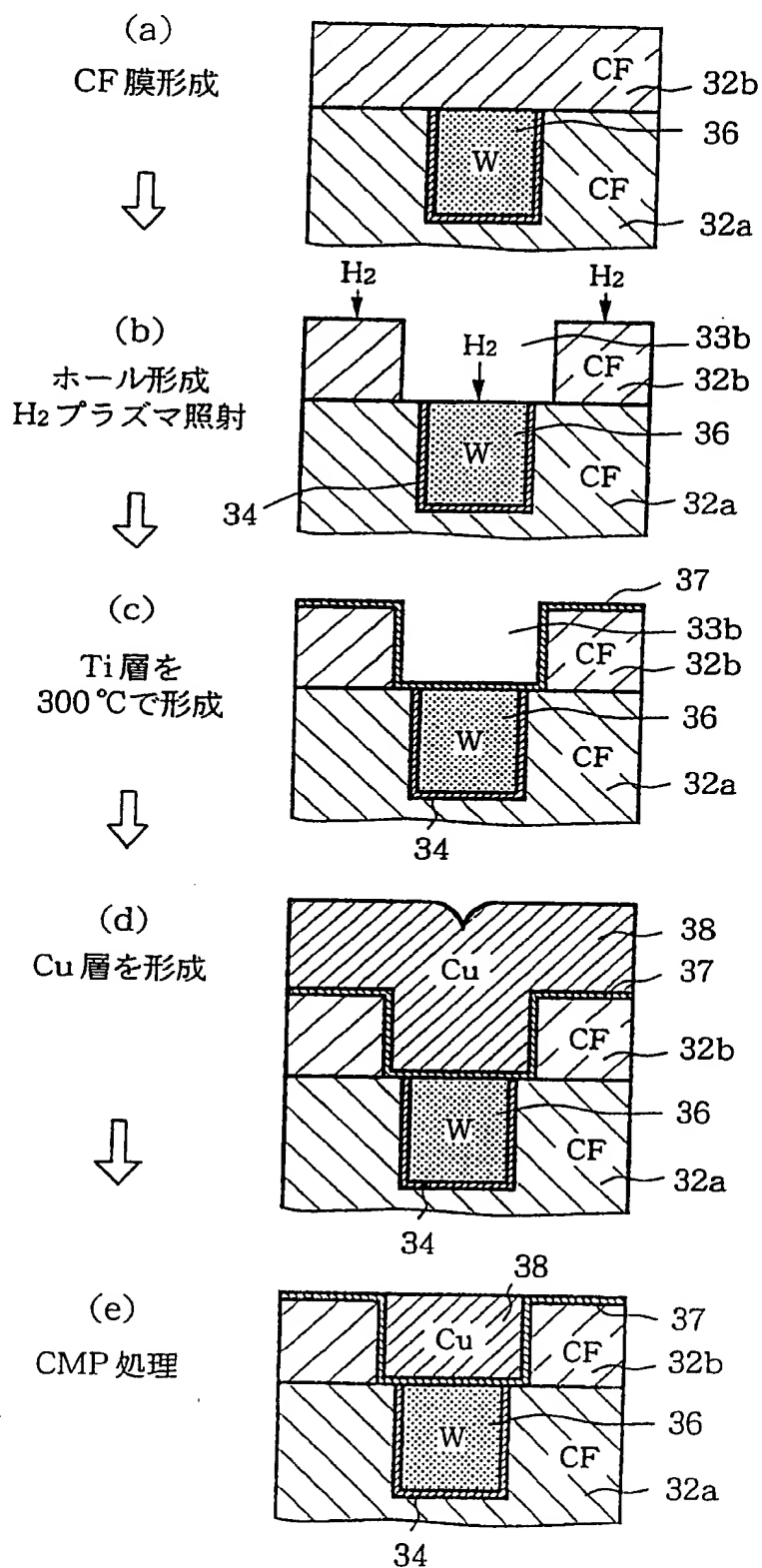


FIG. 3

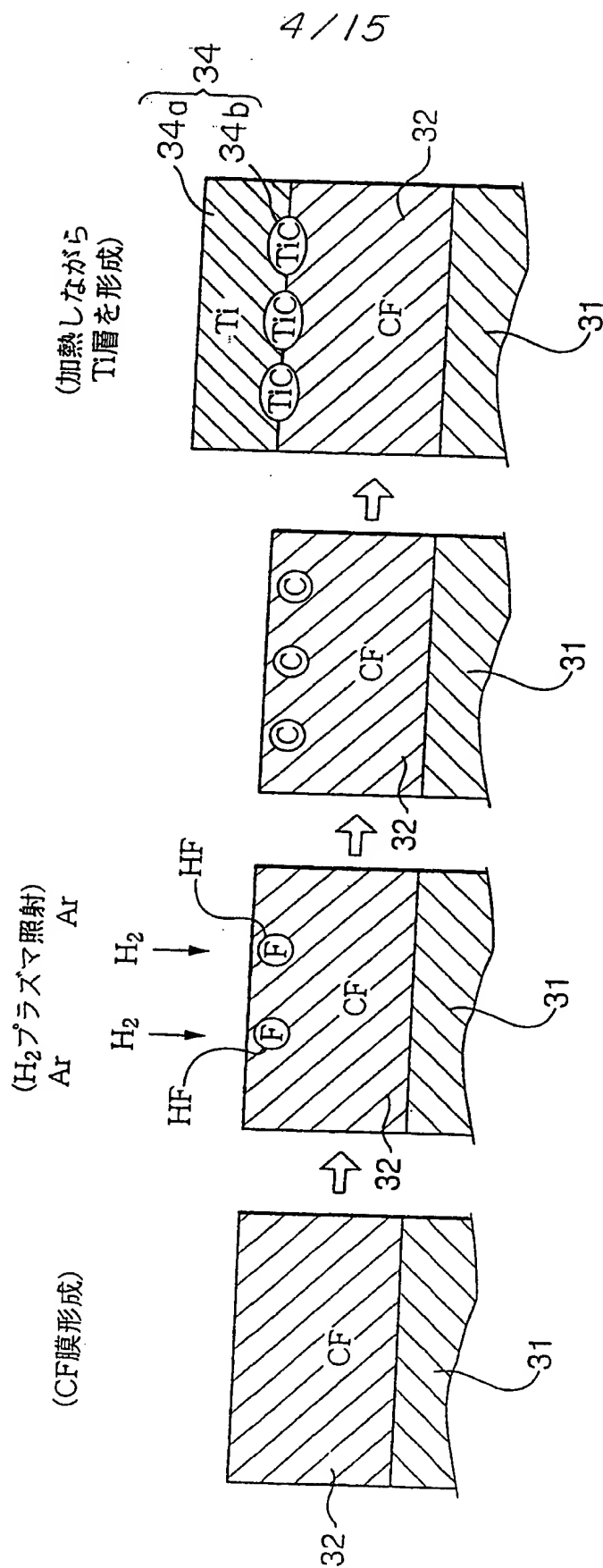


FIG. 4

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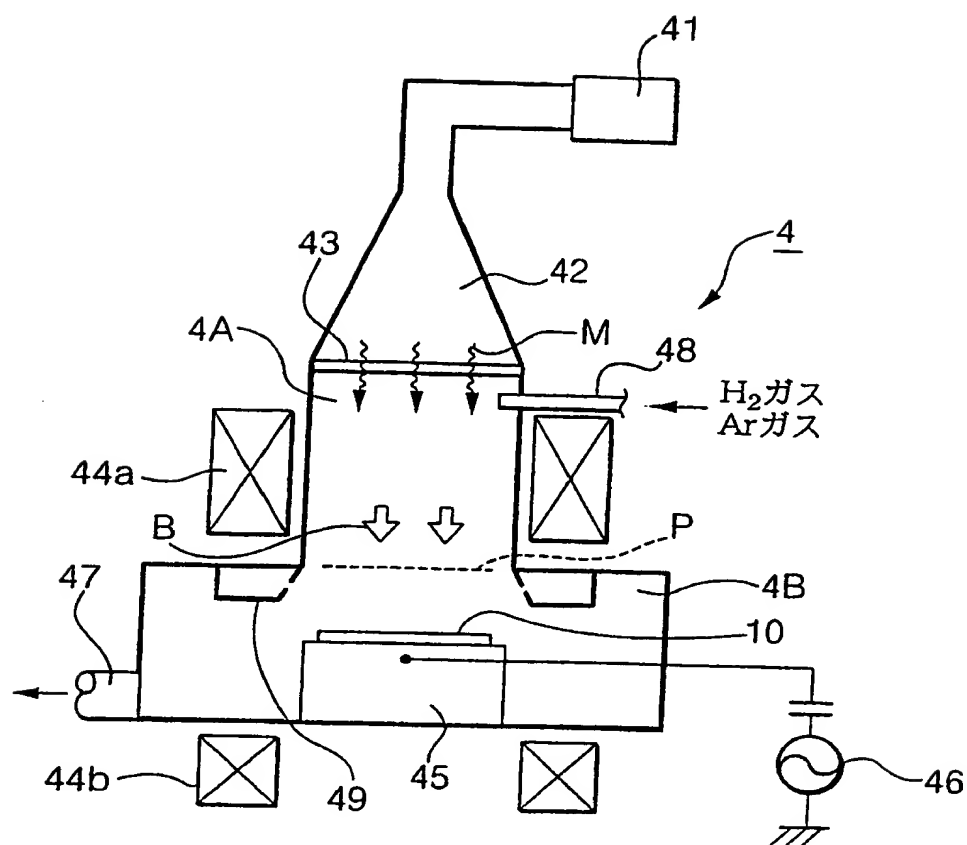


FIG. 5

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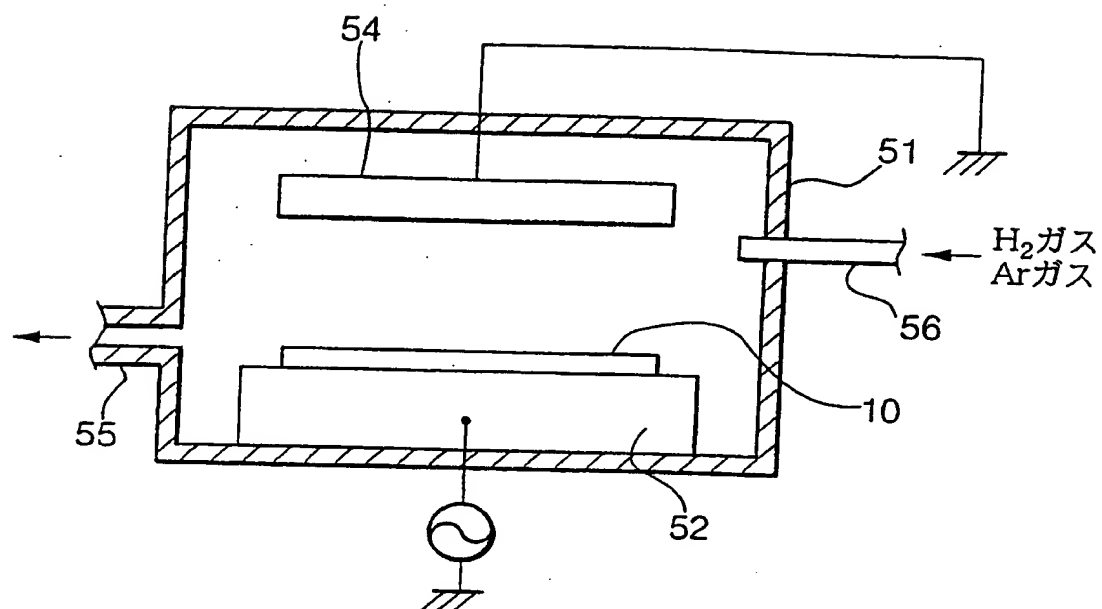


FIG. 6

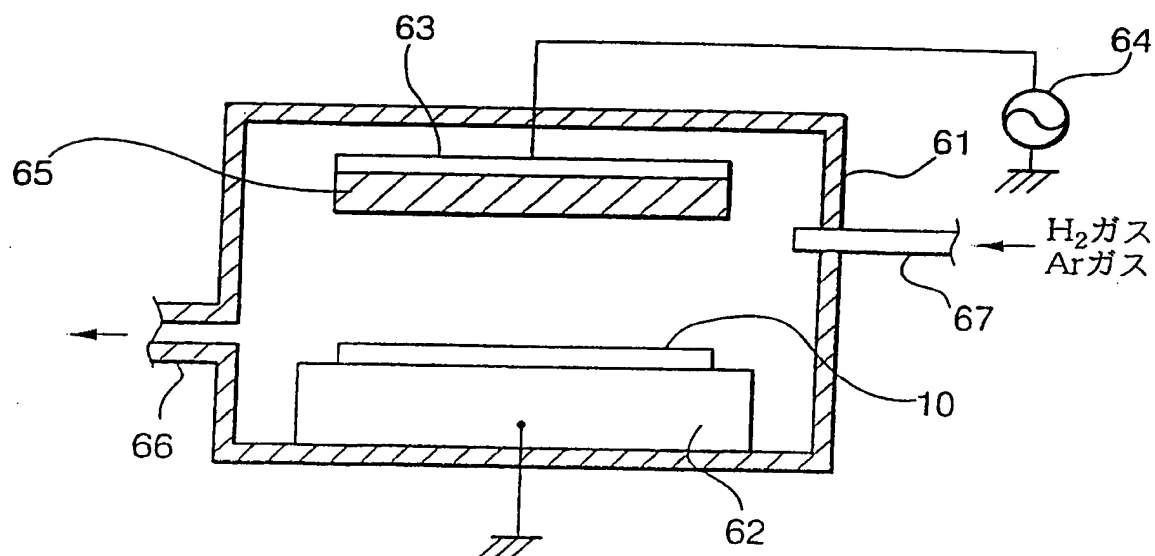


FIG. 7

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Cu	2000 Å
Ti	500 Å
CF	5000 Å
Si	

FIG. 8a

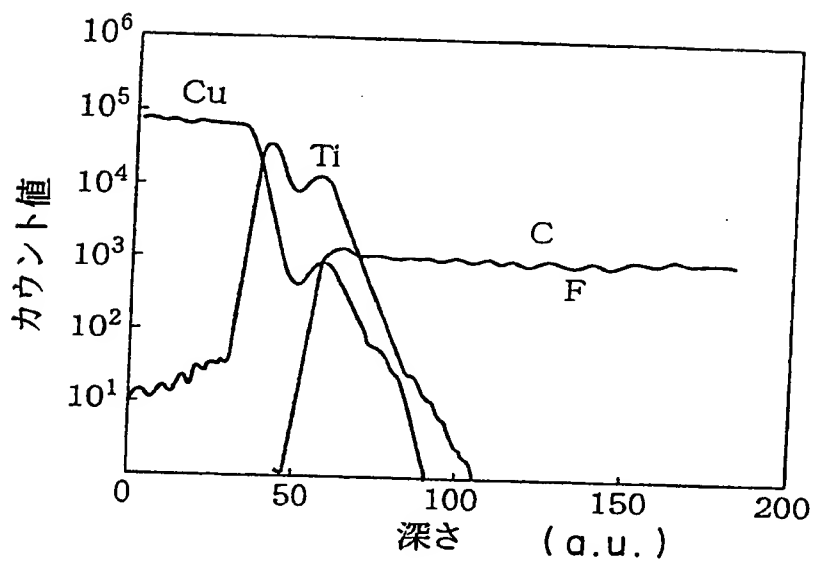


FIG. 8b

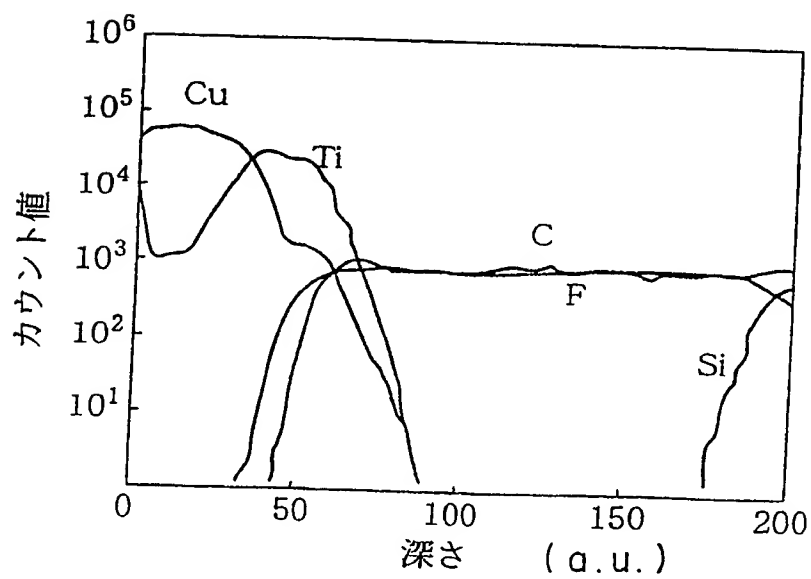


FIG. 8c

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Cu	2000 Å
Ti	500 Å
SiO ₂	5000 Å
Si	

FIG. 9a

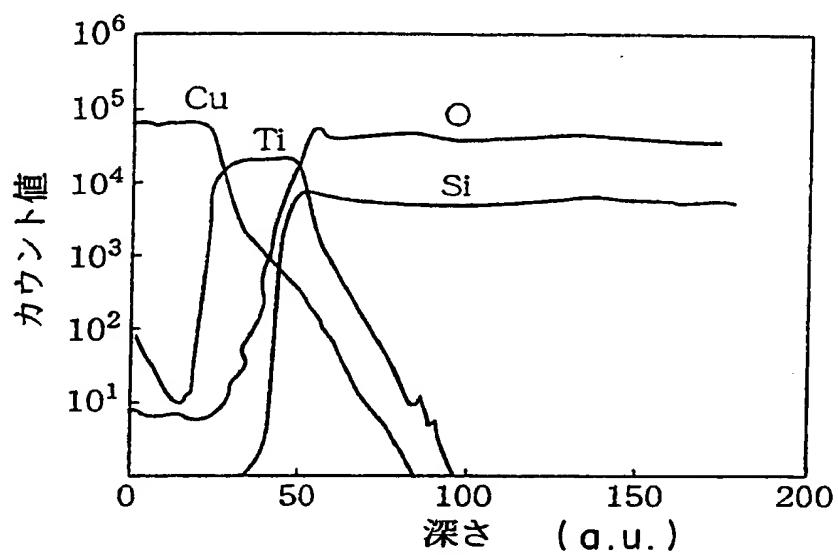


FIG. 9b

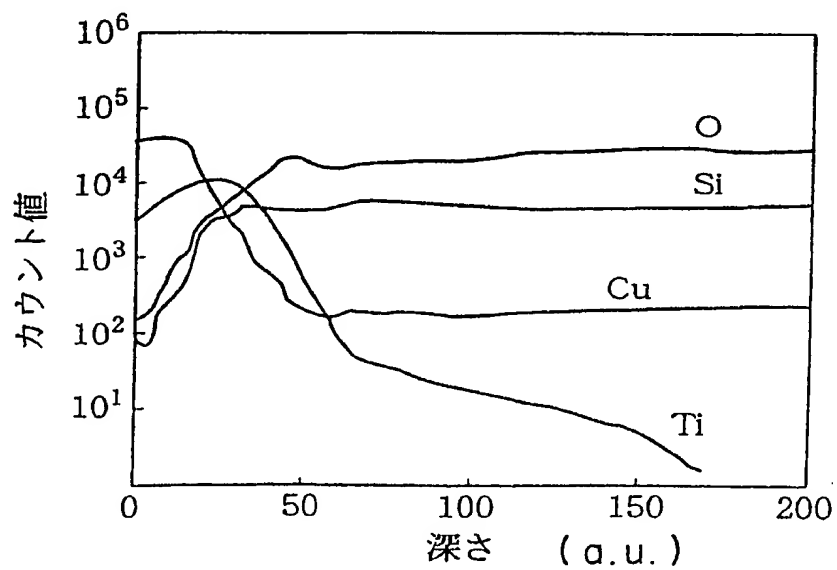


FIG. 9c

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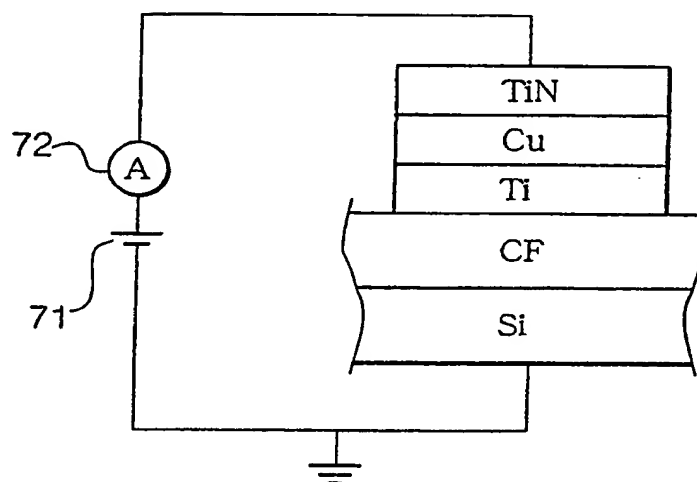


FIG. 10

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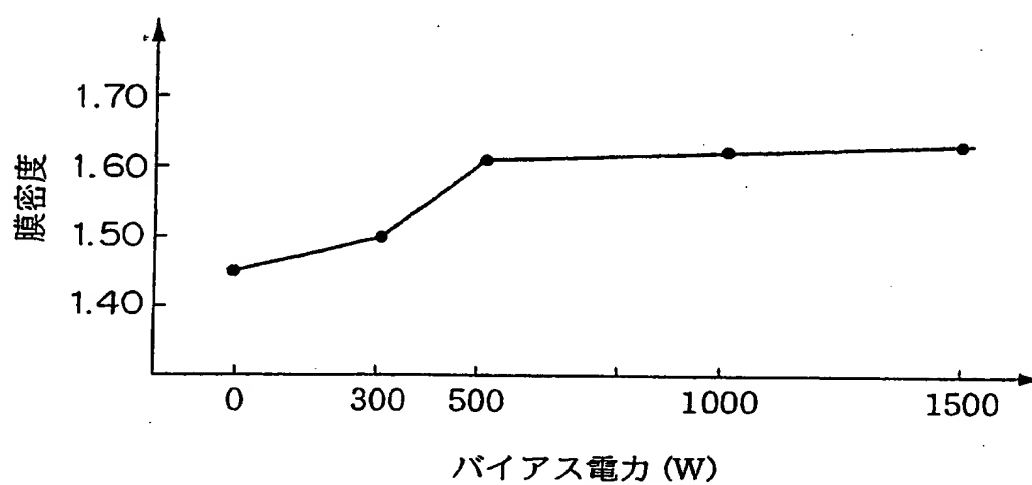


FIG. 11a

バイアス電力 (W)	0	300	500	1000	1500
MTTF (hr)	0.98	1.63	1.65	1.80	1.92

FIG. 11b

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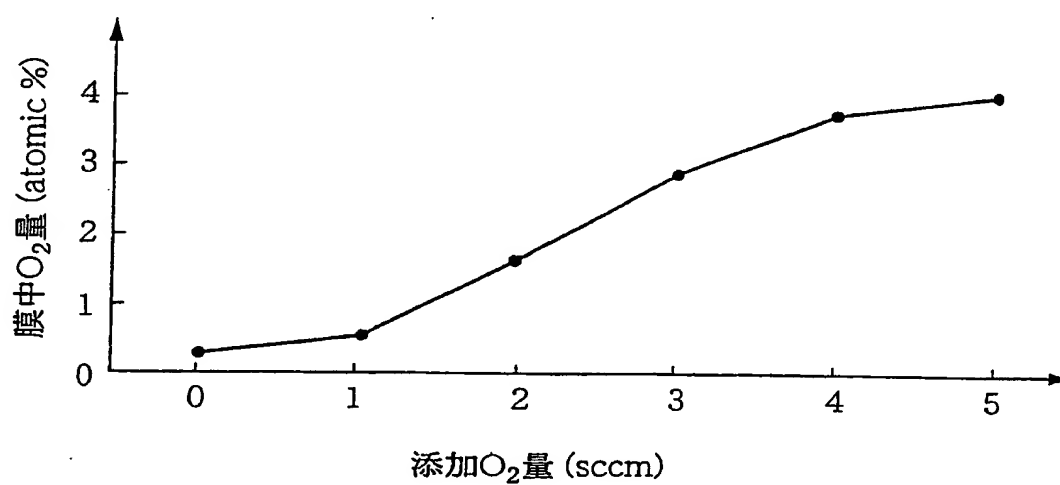


FIG. 12a

添加O ₂ 量 (sccm)	0	1	2	3	4	5
MTTF (hr)	1.92	2.13	2.11	1.90	0.84	0.65

FIG. 12b

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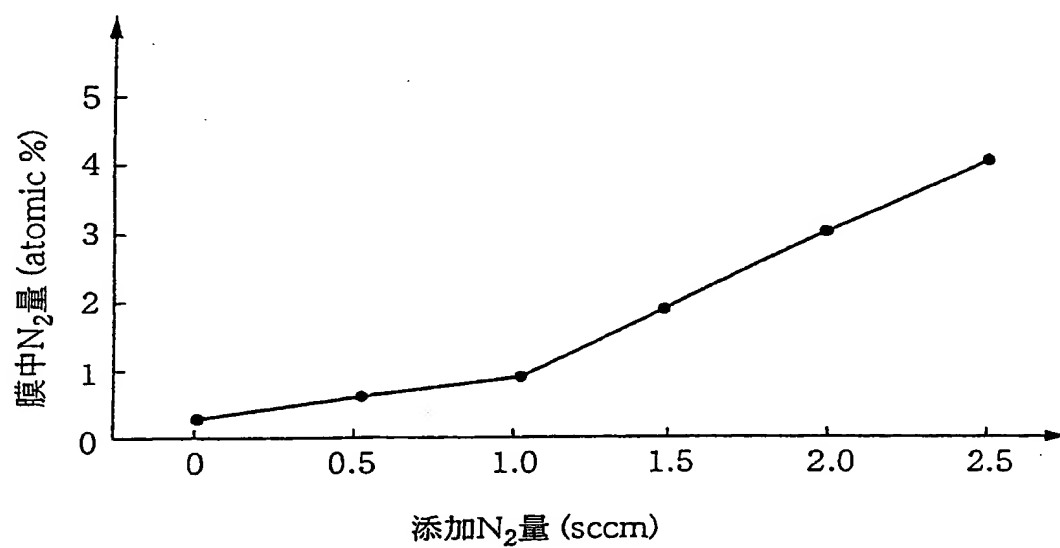


FIG. 13a

添加N ₂ 量 (sccm)	0	0.5	1.0	1.5	2.0	2.5
MTTF (hr)	1.92	1.81	1.70	1.65	1.55	0.78

FIG. 13b

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添加BF ₃ 量 (sccm)	膜中B量
0.1	5×10^{-4} atomic %
0.2	10^{-3} atomic %
1	0.01 atomic %
5	0.1 atomic %
10	1 atomic %
20	2 atomic %

FIG. 14a

添加BF ₃ 量(sccm)	0.1	0.2	1	5	10	20
MTTF (hr)	1.98	2.35	2.65	2.68	2.76	0.75

FIG. 14b

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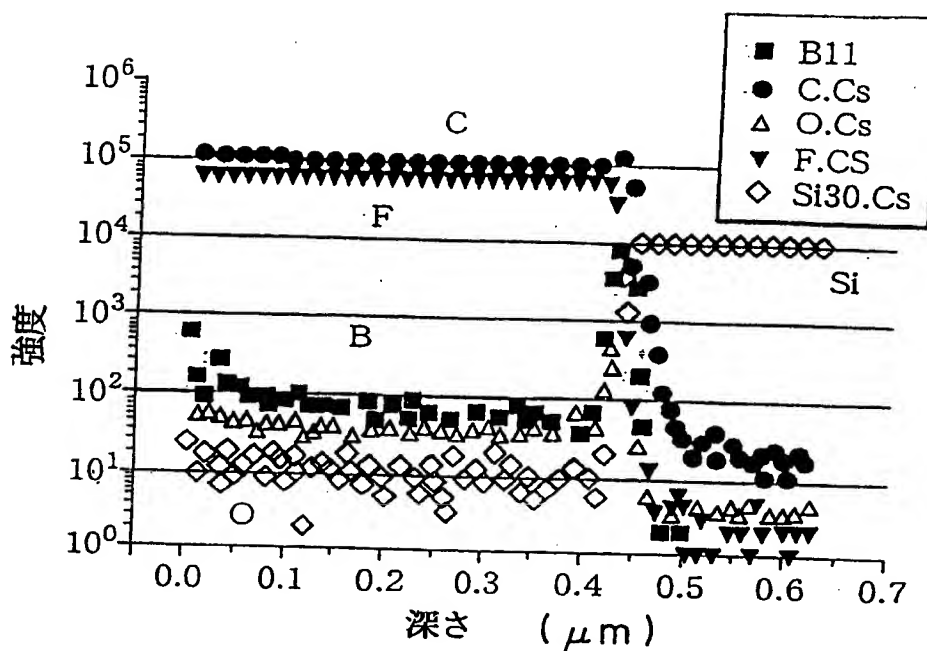


FIG. 15a

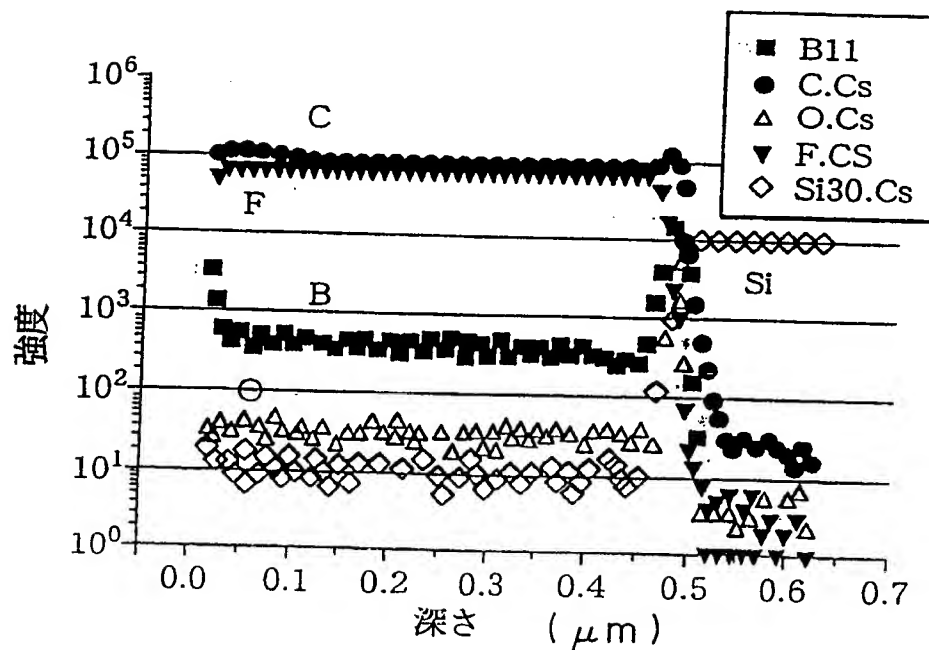


FIG. 15b

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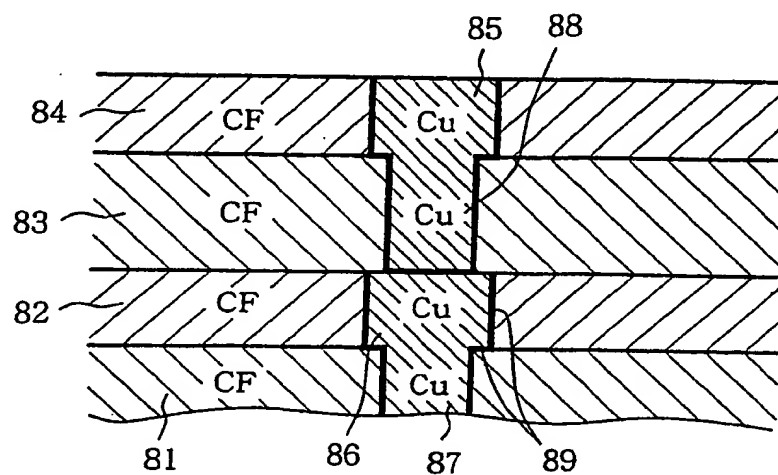


FIG. 16

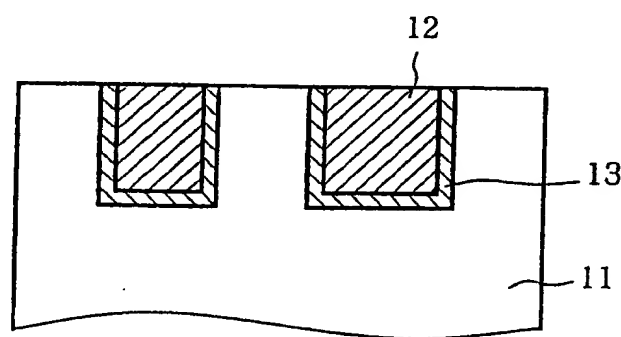


FIG. 17